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ABSTRACT

The Commonwealth Computer-Assisted Instruction (CAI) Consortium continued to develop its algebra and general mathematics courses for ninth graders during the quarter ending August 31, 1969. The program's essential innovative features remained computer-controlled tutorial instruction supplemented by conventional individualized learning experiences. Plans were made to store student performance data and to use these to direct both on-line and off-line instruction. A field test of the CAI program was run with 16 students; for six weeks the pupils spent 20 minutes a day with the on-line program and 100 minutes daily with appropriate off-line materials. A manual was prepared for CAI teachers, outlining course content, computerized instructional sequences, program routines, and terminal operating procedures. A three-week workshop was held to familiarize teachers with the individualized aspects of CAI, to introduce them to computer programing using Coursewriter II language, to acquaint them with the content of the CAI math programs, and to provide them with experience in utilizing off-line materials. Finally, an IBM 1500 system with eight 1510 instructional stations was installed in Lincoln High School in Philadelphia and remodeling continued at Schenley High School in Pittsburgh. (PB)

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Commonwealth CAI Consortium

ESEA Title III Project #5523

Technical Report, August 31, 1969

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Course Development

The Algebra I and General Mathematics courses under development are directed to a ninth grade student population. The essential innovative feature of these courses is a tutorial instruction program under computer control. This "on-line" program is supplemented by a variety of more conventional individualized learning experiences.

The students will receive basic instruction in mathematical concepts from the computer-assisted instruction program. A record of the student's interaction with the CAI program will be stored in the computer. These performance data will serve to direct the flow of the "on-line" instruction. The student whose performance indicates rapid acquisition of the mathematical concepts will by-pass the detailed instruction required to bring a less able student to criterion.

In addition to controlling the flow of the CAI program, the student performance data will enable the CAI classroom teacher to assign to the students appropriate "off-line" instructional materials to meet their individual needs. These materials will include filmstrips, mathematical games, programed instruction materials, printed materials, and manipulative materials.

The amount of time available for course development by staff members was sharply curtailed during June, July, and August because of vacations, supervision of students who participated in a field trial of the program at Penn State, and staff participation in a CAI workshop at Philadelphia, Pennsylvania.

The utilization pattern which was formulated for the Consortium project was tested using the CAI Laboratory facilities at Penn State over a six-week period beginning June 23, 1969. Sixteen volunteers from the eighth grade of

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the State College Area Schools participated two hours daily in the program. Eight students were assigned to the algebra course and eight to the general mathematics course. The daily two-hour period was divided into three 40-minute segments to approximate regular class periods during the school year. Each student spent an average time of twenty minutes per segment with the on-line program. The remaining time was spent working with appropriate off-line materials. Minor revisions were made to the on-line programs based on observations by staff members of student interaction with the on-line course material.

A manual was prepared as a guide for the CAI classroom teachers. This documentation includes: 1) an outline of content by chapter for each course; 2) an outline which enables a teacher to identify a computer program label with specific instructional sequences; 3) description of the special course routines incorporated in the programs; and 4) general terminal operating procedures.

Training Activities

A three-week workshop funded by the U. S. Office of Education under provisions of the Education Professional Development Act (EPDA) was conducted at Lincoln High School, Philadelphia, Pennsylvania, from August 11 through August 29, 1969. The objectives of the workshop were to:

1) illustrate an individualized instruction environment utilizing CAI;
2) introduce the participants to computer programing using Coursewriter II language;
3) familiarize the participants with the content of the CAI algebra and general mathematics programs; and
4) provide the participants with experience in utilizing off-line course materials with the on-line program.

The 21 participants in the workshop included 11 teachers from the Philadelphia schools and 10 teachers from the Pittsburgh schools.

Facilities

An IBM 1500 system with eight 1510 instructional stations with typewriter keyboards and lightpens was installed in Lincoln High School, Philadelphia, in July, and this system was used for the EPDA workshop. Remodeling continues in the Schenley High School, Pittsburgh. The Consortium staff continued to use approximately fifty per cent of Penn State's CAI system during the present report period.

Schedule

Target dates for the current funding period:

September 1, 1969 - December 31, 1969:	Completion of on-line programs
September 8, 1969 - February 28, 1970:	Conduct formal CAI mathematics education program at the two high schools -- Lincoln in Philadelphia and Schenley in Pittsburgh